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CHEN, QING				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

**Office Action Summary****Application No.**

10/676,819

**Applicant(s)**

WEDEL ET AL.

**Examiner**

Qing Chen

**Art Unit**

2191

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 26 March 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 and 8-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 March 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/S508)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

1. This Office action is in response to the RCE filed on March 26, 2008.
2. **Claims 1-6 and 8-14** are pending.
3. **Claims 1, 9, and 14** have been amended.
4. **Claim 7** has been cancelled.
5. The objection to the oath/declaration is withdrawn in view of Applicant's submission of the supplemental oath/declaration.
6. The objection to the drawings is withdrawn in view of Applicant's submission of the replacement drawing sheets.
7. It is noted that Claim 9 contains amendments to the claim that are not submitted with markings to indicate the changes that have been made relative to the immediate prior version of the claim.

***Response to Amendment***

***Claim Objections***

8. **Claims 9-13** are objected to because of the following informalities:
  - **Claims 9-11** recite the limitation "the at least one data structure." Applicant is advised to change this limitation to read "the at least one of the plurality of data structures" for the purpose of providing it with proper explicit antecedent basis.
  - **Claims 12 and 13** depend on Claim 9 and, therefore, suffer the same deficiency as Claim 9.

- **Claim 9** contains a typographical error: “the at least one application controls” should read -- the at least one application control --.

Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. **Claims 1, 3-5, 9, and 11-14** are rejected under 35 U.S.C. 103(a) as being unpatentable over **US 5,481,710 (hereinafter “Keane”)** in view of **US 6,185,591 (hereinafter “Baker”)**.

As per **Claim 1**, Keane discloses:

- displaying a user interface in a client program, the user interface having a plurality of controls, the plurality of controls including multiple types of controls, each control having a state (see Figures 1 and 2; Column 2: 41-67, “... a computer system display screen is designated generally by the numeral 11. Display screen 11 has displayed therein a window 13, which represents a drawing program, and a window 15, which represents a text editor application.” and “Drawing programs, such as the one of window 13, typically give the user the ability to draw figures, such as triangle 21, move them about, rotate them, resize them, color them, and perform other operations, all well known to those skilled in the art.” and “The text editor of

*window 15 allows the user to enter text, as shown in client area 29 of window 15, and perform various actions upon the text, such as change fonts, delete, move, copy, and perform other operations, all as are well known to those skilled in the art.”);*

- for each control in the plurality of controls, storing the state of the control as a first state for the control (*see Column 3: 37-39, “After the applications and undo/redo service have been started and initialized, the application monitors user input at block 41.”);*

- receiving user input comprising a change to the state of a control in the plurality of controls (*see Column 3:39-42, “If, at decision block 43, the user requests a menu, which is illustrated in FIG. 2 by pulling down menu 31, the application executes the menu handler routine, represented generally at block 45.”);*

- updating the state of the control based on the user input (*see Column 3: 57-59, “If the action is undoable, then the application processes the action, at block 60, builds a packet, at block 61, and gives the packet to the undo/redo service.”);*

- storing the updated state of the control as a second state for the control (*see Column 4: 6-10, “... after the packet is built, it is given to the undo/redo service where it is “pushed” or put on top of the undo stack of the service at block 63. Whenever a packet is given to the undo/redo service, the redo stack of the service is cleared, at block 65.”);*

- receiving user input comprising a request to undo the change (*see Column 4: 38-40, “... whenever the user requests the UNDO action (at decision block 47 of FIG. 3), the undo/redo service pops the top packet from the undo stack at block 79.”);* and

- restoring the state of the control to reflect the first state for the control (*see Column 4: 41-43, "Then the service executes that packet's undo code block at block 81. Again, the code block, when applied to the object or objects of the packet, will cause the action to be undone."*).

However, Kcane does not disclose:

- each control having a control data structure;
- storing the state of the control in the control data structure; and
- storing the updated state of the control in the control data structure.

Baker discloses:

- each control having a control data structure (*see Column 8: 20-23, "Undo structure 32 within Undo Stack 31 consists of a linked list of undo records created as changes take place to the document during the edit session, while undo recording is enabled."*);

- storing the state of the control in the control data structure (*see Column 8: 24-31, "The information stored depends on the type of change, and the particular edit system. Undo records are of three basic types: ..."*); and

- storing the updated state of the control in the control data structure (*see Column 8: 32-39, "Complex operations will create a series of the above undo records. For example, a block move will create a series of DELETION and INSERTION undo records that all belong to one undo unit. An undo unit records a set (generation) of changes in the document. It comprises all the data necessary to undo an entire edit operation performed on the text, from one character change in one text record, to all the changes done in the context of one global change operation."*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Baker into the teaching of Keane to include each control having a control data structure; storing the state of the control in the control data structure; and storing the updated state of the control in the control data structure. The modification would be obvious because one of ordinary skill in the art would be motivated to provide the capability to recover the change that had been originally made in the process of editing the document (*see Baker – Column 2: 27-38*).

As per **Claim 3**, the rejection of **Claim 1** is incorporated; and Keane further discloses:

- wherein the state of the control includes a data state and a view state (*see Figures 1 and 2*), and wherein the operations further comprise:
  - determining whether the change affects the data state or the view state of the control (*see Column 4: 13-25, "When the user requests a menu (at decision block 43 of FIG. 3) the application inquires of the undo/redo service, at decision block 67, whether there are any packets to be undone." and "If the undo stack is not empty, then the undo/redo service returns the text string from the top packet of the undo stack and the application enables the undo action with the string returned from the undo/redo service, at block 71. Thus, in FIG. 2, menu 31 of window 15 includes "UNDO TYPING", which indicates that the text string from the top packet of the undo stack is "TYPING".*"); and
  - restoring the state of the control only if the change affects the data state of the control (*see Column 4: 41-43, "Then the service executes that packet's undo code block at block 81.*

*Again, the code block, when applied to the object or objects of the packet, will cause the action to be undone.”).*

As per **Claim 4**, the rejection of **Claim 1** is incorporated; and Kearney further discloses:

- receiving user input comprising a request to redo the change to the control (see

*Column 4: 56-57, “... whenever the user requests the REDO action (decision block 51 of FIG. 3) ...”); and*

- restoring the state of the control to reflect the second state for the control (see *Column 4: 57-59, “... the service pops the top packet from the redo stack at block 85 and executes that packets redo code block at block 87.”).*

As per **Claim 5**, the rejection of **Claim 1** is incorporated; and Kearney further discloses:

- wherein the user input comprising the request to undo the change is received while focus is not on the control (see *Column 3: 39-42, “If, at decision block 43, the user requests a menu, which is illustrated in FIG. 2 by pulling down menu 31 ...”).*

As per **Claim 9**, Kearney discloses:

- detecting that at least one application control of the plurality of application controls has changed from a prior state to a new state (see *Column 3: 39-42, “If, at decision block 43, the user requests a menu, which is illustrated in FIG. 2 by pulling down menu 31, the application executes the menu handler routine, represented generally at block 45.”);*



- recording the prior state of the at least one application control (*see Column 3: 37-39, "After the applications and undo/redo service have been started and initialized, the application monitors user input at block 41."*);
- receiving user input requesting that an undo operation be performed (*see Column 4: 38-40, "... whenever the user requests the UNDO action (at decision block 47 of FIG. 3), the undo/redo service pops the top packet from the undo stack at block 79."*); and
- performing the undo operation by restoring the at least one application control to the prior state (*see Column 4: 41-43, "Then the service executes that packet's undo code block at block 81. Again, the code block, when applied to the object or objects of the packet, will cause the action to be undone."*).

However, Keane does not disclose:

- generating a plurality of data structures that store application data and associations between the application data and a plurality of application controls, wherein the plurality of application controls are rendered based on the application data;

- updating at least one of the plurality of data structures based on the new state; and
- updating the at least one of the plurality of data structures based on the prior state.

Baker discloses:

- generating a plurality of data structures that store application data and associations between the application data and a plurality of application controls, wherein the plurality of application controls are rendered based on the application data (*see Column 8: 20-23, "Undo structure 32 within Undo Stack 31 consists of a linked list of undo records created as changes take place to the document during the edit session, while undo recording is enabled."*);

- updating at least one of the plurality of data structures based on the new state (*see Column 8: 24-31, "The information stored depends on the type of change, and the particular edit system. Undo records are of three basic types: ..."*); and
- updating the at least one of the plurality of data structures based on the prior state (*see Column 8: 32-39, "Complex operations will create a series of the above undo records. For example, a block move will create a series of DELETION and INSERTION undo records that all belong to one undo unit. An undo unit records a set (generation) of changes in the document. It comprises all the data necessary to undo an entire edit operation performed on the text, from one character change in one text record, to all the changes done in the context of one global change operation."*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Baker into the teaching of Keane to include generating a plurality of data structures that store application data and associations between the application data and a plurality of application controls, wherein the plurality of application controls are rendered based on the application data; updating at least one of the plurality of data structures based on the new state; and updating the at least one of the plurality of data structures based on the prior state. The modification would be obvious because one of ordinary skill in the art would be motivated to provide the capability to recover the change that had been originally made in the process of editing the document (*see Baker – Column 2: 27-38*).

As per **Claim 11**, the rejection of **Claim 9** is incorporated; however, Keane does not disclose:

- wherein the at least one of the plurality of data structures is stored on a client device.

Baker discloses:

- wherein the at least one of the plurality of data structures is stored on a client device  
*(see Column 4: 49-56, "... the invention is also suitable and relevant to various computer system environments ... including use in conjunction with host computer systems such as VM/CMS operating systems and personal computer systems such as OS/2®, AIX® and Windows® operating systems.").*

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Baker into the teaching of Keane to include wherein the at least one of the plurality of data structures is stored on a client device. The modification would be obvious because one of ordinary skill in the art would be motivated to provide the capability to recover the change that had been originally made in the process of editing the document *(see Baker – Column 2: 27-38)*.

As per **Claim 12**, the rejection of **Claim 9** is incorporated; and Keane further discloses:

- wherein the one or more application controls include multiple types of controls *(see Column 2: 63-67, "The text editor of window 15 allows the user to enter text, as shown in client area 29 of window 15, and perform various actions upon the text, such as change fonts, delete, move, copy, and perform other operations, all as are well known to those skilled in the art.").*

As per **Claim 13**, the rejection of **Claim 9** is incorporated; and Keane further discloses:

- wherein the associations between the application data and the plurality of application controls are defined by metadata (*see Column 4: 1-6, "A packet comprises the identity of the object or objects acted upon, a text string for use in the menu, the code block which, when applied to the object or objects of the packet, will cause the action to be undone, and the code block which, when applied to the object or objects of the packet, will cause the action to be redone."*).

**Claim 14** is an apparatus claim corresponding to the computer program product claim above (Claim 1) and, therefore, is rejected for the same reason set forth in the rejection of Claim 1.

11. **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Keane** in view of **Baker** as applied to Claim 1 above, and further in view of "**HTML 4.01 Specification, December 1999** (hereinafter "**HTML1999**").

As per **Claim 2**, the rejection of **Claim 1** is incorporated; and Keane further discloses:

- wherein the multiple types of controls include one or more of a text field control type and a menu control type (*see Figures 1 and 2*).

However, Keane and Baker do not disclose:

- wherein the multiple types of controls include one or more of a radio button control type, a table control type, and a tray control type.

HTML1999 discloses:

- wherein the multiple types of controls include one or more of a radio button control type, a table control type, and a tray control type (*see Section 17.2.1*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of HTML1999 into the teaching of Keane to include wherein the multiple types of controls include one or more of a radio button control type, a table control type, and a tray control type. The modification would be obvious because one of ordinary skill in the art would be motivated to enhance usability.

12. **Claim 6** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Keane** in view of **Baker** as applied to Claim 1 above, and further in view of **US 6,167,455 (hereinafter "Friedman")**.

As per **Claim 6**, the rejection of **Claim 1** is incorporated; however, Keane and Baker do not disclose:

- wherein restoring the state of the control includes restoring the state of another control that shares data with the control.

Friedman discloses:

- wherein restoring the state of the control includes restoring the state of another control that shares data with the control (*see Column 2: 44-47, "The user can thus cause the do and undo method of one command object to be invoked, and the corresponding do or undo method of a linked command object will also be invoked."*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Friedman into the teaching of Keane to include wherein restoring the state of the control includes restoring the state of another control that shares data with the control. The modification would be obvious because one of ordinary skill in the art would be motivated to product consistent results (*see Friedman – Column 2: 64-67*).

13. **Claim 8** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Keane** in view of **Baker** as applied to Claim 1 above, and further in view of US 5,524,205 (hereinafter “**Lomet**”).

As per **Claim 8**, the rejection of **Claim 1** is incorporated; however, Keane and Baker do not disclose:

- wherein restoring the state of the control occurs prior to transmitting the state of the control to a server.

Lomet discloses:

- wherein restoring the state of the control occurs prior to transmitting the state of the control to a server (*see Column 1: 66-67 through Column 2: 1-3, “... a function shipping system, which is better known as a "partitioned" system, ships a collection of operations to the computer designated as the "server" for a partition of the data.”*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Lomet into the teaching of Keane to include wherein restoring the state of the control occurs prior to transmitting the state of the control to a

server. The modification would be obvious because one of ordinary skill in the art would be motivated to perform the operations and ships the results back to the requestor (*see Lomet – Column 2: 2-3*).

14. **Claim 10** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Keane** in view of **Baker** as applied to Claim 9 above, and further in view of US 6,543,006 (hereinafter “Zundel”).

As per **Claim 10**, the rejection of **Claim 9** is incorporated; however, Keane and Baker do not disclose:

- wherein the at least one of the plurality of data structures is at least one data tree.

Zundel discloses:

- wherein the at least one of the plurality of data structures is at least one data tree (*see Column 4: 40-46, “Program 30 utilizes several Directed Acyclic Graph (DAG) data structures to track design data and design intent. These structures will be briefly discussed to provide a foundation for terminology used throughout this description. These DAGs are presented purely for exemplary purposes--other data structures, such as non-directional graphs, trees, etc., can also be used.”; Column 8: 60 and 61, “Note also that either a linear list or hierarchical tree can be used to track operations and related program states.”*).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Zundel into the teaching of Keane to include wherein the at least one of the plurality of data structures is at least one data tree. The

modification would be obvious because one of ordinary skill in the art would be motivated to make information easier to manipulate and search.

***Response to Arguments***

15. Applicant's arguments with respect to Claims 1, 9, and 14 have been considered, but are moot in view of the new ground(s) of rejection.

***Conclusion***

16. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

17. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Qing Chen whose telephone number is 571-270-1071. The Examiner can normally be reached on Monday through Thursday from 7:30 AM to 4:00 PM. The Examiner can also be reached on alternate Fridays.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Wei Zhen, can be reached on 571-272-3708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2100 Group receptionist whose telephone number is 571-272-2100.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications



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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/QC/

May 31, 2008

/Wei Zhen/

Supervisory Patent Examiner, Art Unit 2191